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| 10/529,361 | 11/03/2005 | Michel Vaultier | 0508-1131 | 4777 |
| 466 7590 09/13/2007 YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202 | | | EXAMINER KOSLOW, CAROL M | |
| | | | ART UNIT 1755 | PAPER NUMBER |
| | | | MAIL DATE 09/13/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/529,361

Applicant(s)

VAULTIER ET AL.

Examiner

C. Melissa Koslow

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1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 100-124 is/are pending in the application.
- 4a) Of the above claim(s) 100-112 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 113-124 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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This action is in response to applicants' amendment of 20 July 2007. The amendment to the canceling the previous claims and presenting new claims 100-124 has overcome 35 USC 101 rejection, the 35 USC 112 rejections over claims 65-79, 98 and 90, and the art rejection over U.S. patent 4,463,071. Applicant's arguments, see page 21, line 5 through page 22, line 4, with respect to the objection to the specification and the 35 USC 112 rejection have been fully considered and are persuasive. The objection of disclosure and the 35 USC 112 rejection as to the reactive ion and "miscible" has been withdrawn. The remaining 35 USC 112 rejections and the art rejection have been modified in view of the new claims. Applicant's arguments with respect to the remaining objection and modified rejections have been fully considered but they are not persuasive.

Claims 100-112 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention (Group II), there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 19 January 2007.

Applicant has presented new claims 100-112, replacing previous claims 65-78 and 90. These claims now include an active and/or positive step for organic synthesis. The Examiner stated in the action of 19 December 2006, that once the method of organic synthesis claims have been rewritten to overcome the 35 USC 101 and 35 USC 112 rejection, they would be considered as part of Group II of the restriction requirement. The new claims overcome the 35 USC 101 and 35 USC 112 rejection and thus are now being considered as part of non-elected Group II.

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This application contains claims 100-112 drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

The disclosure is objected to because of the following informalities:

Pages 6 and 13 teach Y^- -F is selected from the anions F, OH, CN, RO and RS, but there is no F group, as defined by the specification, in these ions, they are only Y^- ionic entities. Appropriate correction is required.

Applicants state that definitions on pages 6 and 13 are correct since there is no F group in the functional group $Y^-(L)_k-F$, when k is 0. Applicants also state that for these groups, the Y anion is non-functionalized. The formula requires the presence of the functionalizing group F. Thus the argument does not overcome the objection.

Claims 114-124 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The original disclosure teaches that when k is 0, Y^-F_i is limited to the anions, OH, F, CN, RO and RS, where R is an alkyl with 1-20 carbon atoms or an aryl with 6-30 carbon atoms. This limitation has been deleted from these claims and thus they include new matter since the now read on compositions where when k is 0, Y^-F_i is any anion bonded to any of the claimed F_i groups.

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Claims 113 and 123 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 113 is indefinite since it teaches either the cation and/or anion of the ionic liquid A_1X_1 is functionalized, but this counters applicants' definitions of A_1 and X_1 which states that these ions are not functionalized..

Claim 123 is indefinite since the definition of X_2 of OH, CN and F do not allow for the presence of the anionic entity Y, as discussed above, and does not match that of claim 79, when is it not OH, CN or F. Claim teaches X_2 is OH, F, CN, RO, RS or has the formula $Y^-(L)-F$, where L is an alkyl groups with 1-20 carbon atoms, Y is an anionic entity and F is one of the listed functional groups. The claimed anions N_3 , R_cBZ_3 and WCR_cV are not found in the list of accepted X_2 ions given in claim .

The new claims did not overcome the previous rejections.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 114-124 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent application publication 2002/0010291.

This reference teaches a mixture of a functionalized ionic liquid combined with a non-functionalized ionic liquid (para. [0054]). This teaching suggests any combination of these liquids, which allows for mixtures where the non-functionalized ionic liquid acts as the matrix and the functionalized ionic liquid is dissolved therein. The reference teaches the non-functionalized liquid can be any known ionic liquid, which includes of claims 119, 121 and 124.

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The functionalized ionic liquid is one where the anion is one of those claimed in claims 85, 122 and 124 and the cation is functionalized, such as a pyridinium or an ammonium, where the functional group is a halogen, SCN, CN, OH, OR, OCOR, COOR and O₂SR, where R is an alkyl group with 1-20 carbon atoms, and it is linked to the cation by an alkyl group having 1-50 carbon atoms. The reference encompasses compositions where the anions of both liquid can be same. There is no indication that functionalized and nonfunctionalized liquids react with each other nor that they can be extracted from each other by solvent extraction, i.e. are dissolved in each other and form a homogenous mixture. The reference suggests the claimed composition.

Applicants argue the claims are directed to an organic synthesis in a homogenous phase on a soluble reaction support. This is incorrect. The examined and rejected claims are directed to a composition comprising a functionalized ionic salt dissolved in a non-functionalized ionic liquid matrix. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the intended use and recycling of the claimed composition) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The fact the examples do not teach the suggested mixture does not overcome the rejection since a reference is not limited to the teachings in the examples. Applicants argue the reference does not teach or suggest that the functionalized ionic liquid dissolves in the non-functionalized liquid or that it forms a homogenous mixture with the non-functionalized ionic liquid. As stated above, there is no indication that the ionic liquids can be extracted from each other by solvent extraction, i.e. are dissolved in each other and form a homogenous mixture. Since the both

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liquids can those claimed, thus would suggest that they are dissolved in each other and form a homogenous mixture, absent any showing to the contrary. The fact the ionic liquid does not dissolve in a hydrocarbon alkane or aromatic co-solvent does not mean that it would not dissolve in a non-functional ionic liquid, which has different properties than the disclosed solvents. The rejection is maintained.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

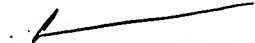
The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
September 10, 2007


C. Melissa Koslow
Primary Examiner
Tech. Center 1700